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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/030,903

05/02/2002

Takahiko Kawasaki

I-184

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EXAMINER

TRAN, LY T

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 03/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,903

Applicant(s)

KAWASAKI ET AL.

Examiner

Ly T TRAN

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-9 and 14,16-21 is/are allowed.
- 6) ☒ Claim(s) 2,10-13,15 and 22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites a controller is provided which drives the first ink ejection elements at prescribed first timing and drives the second ink ejection elements at a second timing later than the first timing. It's unclear that driving the first and second ink ejection opening is order to recording an image or to cleaning the nozzles. Based on the specification, the second ink ejection element is to eject ink for recovery so the examiner interpret the claim such that driving the second ink ejection element for recovery at a second time later than the first timing for recording.

Claims 12-13 are rejected due to their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Inada (USPN 5,479,196).

With respect to claims 2 and 22, Inada discloses a print head having a plurality of nozzles for ink ejection and plural ink ejection elements (Fig.10: element 15, 16) for ejecting ink from nozzle and forming an image by driving any of the ink ejection elements (Column 8: line 1-10) comprising a controller which drives, on prescribed ejection recovery, two or more of the ink ejection elements simultaneously to eject the ink through the nozzle for ink ejection recovery ink ejection element is a heater element which generates heat (Column 8: line 62-Column 9: line 25).

3. Claims 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamashita (JP 04221644).

With respect to claim 10, Yamashita discloses an ink jet apparatus having a printing head having plural nozzles for ink ejection (Fig.2), and first ink ejection elements formed respectively near each nozzles for ejecting the ink from the nozzle, and forming an image by driving the first ink ejection element to eject the ink (Fig.3: element 7) wherein the ink jet imaging apparatus comprising second ink ejection elements formed respectively upstream against the ink ejection direction before the first ink ejection element for ejecting the ink from the nozzles, having higher ink-ejection performance than the first ink ejection elements (Fig.3: element 8, Abstract).

With respect to claim 11, since Yamashita discloses to apply a signal to heater 7 and 8, and apply a larger electric power to heater 8 for cleaning, it's inherently having a

controller to drive the first and second ink ejection elements and since Yamashita discloses the eject the ink to recording an image then cleaning the orifice by apply a larger electric power to heater 8, it should drive the second ink ejection elements at a second timing later than the first timing.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP 04221644) in view of Kaneko (USPN 6,033,051).

Yamashita discloses driving the second heat element to perform the recovery.

However, Yamashita fails to teach the counter for counting the number of times of driving of the first ink ejection element and controller drives the second ink ejection elements when the count of the counter reaches a prescribed number of times.

Kaneko teaches counting a number of ink ejection data and operating the recovering based on counting (Column 7: line 46-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Yamashita to counting a number of ink ejection data and operating the recovering based on counting as taught by Kaneko.

The motivation of doing so is to minimize an amount of waste ink and minimize possibility of damaging of a print head by restricting number of times to perform the recovery operation to the possible minimum number.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP 04221644) in view of Hosono (6,488,354).

Yamashita fails to teach a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor.

Hosono teaches a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor (Column 18: line 58-56, Column 19: line 22-40, table 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Yamashita to have a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor as taught by Hosono. The motivation of doing so is the flushing operation can be performed suitable for a state of the viscosity of the ink therefore it can be more surely prevented that the nozzle is clogged with the ink.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inada (USPN 5,479,196) in view of Ishinaga et al. (USPN 6,199,972).

Inada fails to teach changing timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet of the nozzle.

Ishinaga et al teach changing timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet/meniscus of the nozzle (Column 7: line 20-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Inada to change the timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet/meniscus of the nozzle as taught by Ishinaga et al. The motivation of doing so is to adjust the amount of ink discharged.

Allowable Subject Matter

7. Claims 1, 3-9 and 14, 16-21 are allowed.
- The primary reason for the allowance of claims 1-9 and 14-22 is the inclusion of the limitation of an ink jet image apparatus comprising a controller which drives, on the prescribed ejection recovery, the first ink ejection elements and the second ink ejection elements of the ink ejection elements simultaneously to eject the ink through the nozzles for ink ejection recovery. This structure provides the advantage of the recovery ejection recovers the state inside the nozzle in a shorter time, preventing color irregularity. It is limitation found in each claims, as it is claimed in the

Art Unit: 2853

combination, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 703-308-0752. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 703-308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0967.



February 27, 2003



HAI PHAM
PRIMARY EXAMINER